

HYDROPORUS SCALESIANUS (COLEOPTERA, DYTISCIDAE) NEW FOR SCOTLAND

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ABSTRACT

Hydroporus scalesianus Stephens, 1828 is a species typically associated with relict fens. It ranges from Ireland, and Les Landes in south-west France to northern Italy, the Czech Republic, and much of Denmark, Fennoscandia, and has recently been recorded as far as West Siberia. This paper describes for the first time the species presence in Scotland.

Adults were fairly common in Fonah Bog (NO 5350), just west of Balgavies Loch in Angus. The beetles were commonest in a mat of *Calliergon* moss lying over a floating bed of bogbean (*Menyanthes trifoliata* L.), bog myrtle (*Myrica gale* L.) and *Sphagnum* in a shallow, hard-bottomed depression on alluvial deposits. The habitat together with its flora and fauna, including other species of water beetle, is described. The literature on records from outside Scotland is briefly reviewed.

RESULTS

Hydroporus scalesianus Stephens, 1828 is a species typically associated with relict fens. It ranges from Ireland, and Les Landes in south-west France to northern Italy, the Czech Republic, and much of Denmark, Fennoscandia, and Russia (Nilsson & Holmen, 1995), recently as far as West Siberia (Petrov, 2002). In Ireland it is still relatively frequent in lake fens and peat bogs from Tipperary to County Down. Fragments of *H. scalesianus* have frequently been identified in peat deposits because no other *Hydroporus* species is so small and red. Even though this species has a largely northern distribution it has never been reported in Scotland previously.

Adults were fairly frequent in Fonah Bog (NO 5350) on 4 April 2003. The site lies just west of Balgavies Loch in Angus. The beetles were commonest in a mat of *Calliergon* moss lying over a floating bed of bogbean (*Menyanthes trifoliata* L.), bog myrtle (*Myrica gale* L.) and *Sphagnum* in a shallow, hard-bottomed depression on alluvial deposits. The floating carpet ran into a willow carr on one side and beaked sedge (*Carex rostrata* Stokes) on the other. A few specimens could be found in the extreme edge of sedge fen. The fauna was dominated by water hoglice or slaters, *Asellus aquaticus* (L.), and 19 other species of water beetle were found near to but not necessarily in immediate association with *H. scalesianus*. These were *Haliphus ruficollis* (De Geer), *Hygrotus inaequalis* (Fab.), *Hydroporus angustatus* Sturm, *H. erythrocephalus* (L.), *H. palustris* (L.), *H. striola* (Gyllenhal in Sahlberg), *H. umbrosus* (Gyllenhal), *Agabus bipustulatus* (L.), *A. congener* (Thunberg), *A. unguicularis* (Thomson), *Ilybius ater* (De Geer), *Rhantus exoletus* (Forster),

Anacaena lutescens (Stephens), *Enochrus coarctatus* (Gredler), *E. ochropterus* (Marsham), *Hydrobius fuscipes* (L.), and *Cercyon tristis* (Illiger). Of special interest was a single male of *Acilius canaliculatus* (Nicolai) a species previously known from Angus in Restenneth Moss and Fithie Loch, taken by Professor Frank Balfour-Browne in 1908 and 1947 respectively. Several individuals of *Hydrochus brevis* (Herbst) were found in the sedge fen margin, a new record for Angus.

H. scalesianus has Red Data Book (RDB) 2 status in Britain (Shirt 1987), *H. brevis* having RDB 3 status, and *A. canaliculatus* provisional RDB 3 status (Hyman & Parsons, 1992).

H. scalesianus was originally named in honour of a Mr Scales of Beechamwell, West Norfolk, but it was not until 1977 that the species was rediscovered in that area, in richly vegetated ponds on the Brecks (Foster, 1982). The species was especially well known from Askham Bog, mid-West Yorkshire (Balfour-Browne, 1940) from 1857 until the end of the 19th Century. Balfour-Browne (1940) found *H. scalesianus* infrequently in the Norfolk Broads during his 1904-6 survey, and it was found spasmodically at Sutton Broad (1926) and Catfield Fen (1923 and 1932) until the 1970s, since when it has become more widespread in the fenland surrounding the Broads (personal observation).

Balfour-Browne (1940) discussed three further English records for *H. scalesianus*, from Hebden Bridge, south-west Yorkshire ca 1830, from Boxmoor, Hertfordshire and from the Portsea area of South Hants up to 1880. He thought it unlikely that these records were due to wrong identification, and he has been proved right for Boxmoor, E.G. Elliman's material in the National Museum of Wales, Cardiff including a specimen from Boxmoor taken in the summer of 1901 (Foster, 1990). The Portsea record has greater credibility following Jeff Robinson's discovery of a site at Sandford Bridge, Dorset in 1997, and, of course, the Hebden Bridge record is supported by the beetle's former occurrence at Askham Bog, and the beetle's recent rediscovery in Yorkshire, beside Hornsea Mere, by Hammond (2002).

Horsfield and Foster (1982) reported *H. scalesianus* in a small, peat-filled kettlehole in County Durham in 1978. Bilton (1984) discovered *H. scalesianus* in Cumberland, at Biglands Bogs, in 1983. Bilton (1988) was also the first to detect it in Ireland, in 1986.

The post-glacial subfossil records are concentrated in the Somerset Levels (Girling, 1984), often in sufficient numbers through peat monoliths to indicate survival over the whole transition from lake fen to raised bog. These records also range

from the Neolithic (5170 before present – B.P.) to post-Iron Age (ca 1700 B.P.), and records continue to accumulate from other post-Glacial deposits, most notably Lindow Man in Cheshire (Dr M H Dinnin, pers. comm. – see also the BUGS2000 data-base – Buckland *et al.* 2002).

DISCUSSION

This compilation of records is a mixture of relict status and discovery, the latter possibly even indicating a recent extension of range. *H. scalesianus* is amongst a group of fenland insects largely confined to relict fen and unknown to colonise habitats of man-made origin. At one stage (Foster, 1982) the British distribution suggested association with relict ponds in the periglacial zone of the most recent Ice Age, but this possibility has been disposed of most effectively by the Cumbrian and Scottish finds. As a member of the relict fen group, *H. scalesianus* might be expected to be flightless. One specimen has been detected in a flight trap in south-east Sweden (Lundkvist, Landin and Karlsson, 2002), so recent occupancy of relict sites retaining high quality habitat cannot be ruled out. However, the most likely scenario, given the species' association with relict sites and other species considered to have relict status, is that we are simply accumulating knowledge of a fragmented distribution by deploying a relatively small number of observers.

An interesting feature of the present day distribution, as opposed to what is known from the fossil record, is that most modern British sites are a relatively short distance from the sea, suggesting increased dependency on a mild coastal climate. The continued wider distribution within Ireland might lend support to this idea, but it is negated by the loss of the species from fens around the Severn estuary, and, of course, by what is known of the extensive distribution in Continental Europe.

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Fig. 1. Distribution of *Hydroporus scalesianus* in Britain and Ireland. Large circles represent 10 km squares in which the species has been found from 1980 onwards, smaller circles earlier records of living beetles, and the crosses post-glacial fossil fragments, with the most recent records taking priority